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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,435	06/19/2000	MICHAEL HAUSMANN	113.1004	5089

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DAVIDSON, DAVIDSON & KAPPEL, LLC  
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EXAMINER
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SISSON, BRADLEY L

ART UNIT	PAPER NUMBER
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1634

MAIL DATE	DELIVERY MODE
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07/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/462,435

Applicant(s)

HAUSMANN ET AL.

Examiner

/Bradley L. Sisson/

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 28-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Prosecution Reopened***

1. In view of the appeal brief filed on 14 December 2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.
2. To avoid abandonment of the application, appellant must exercise one of the following two options:
3. File a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
4. Initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.
5. A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 34 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The term "similar" in claim 34 is a relative term, which renders the claim indefinite. The term "similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

9. Claim 38 is confusing wherein is written: "or and/or."

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

11. Claims 28-34, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by US RE38,307 E (Gustafsson et al.)

12. Gustafsson et al., disclose a variety of wave field microscopes and related methods of using same. As seen in Figures 1, 3-6, and 26-36, and also at column 11, the wave field microscope comprises not only an illumination system, but also an optical detection system. At column 4, Gustafsson et al., disclose a stage that can translate. Said stage is construed to meet the limitation of applicant's "holding device for the object" and the limitation of "the object

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being shiftable relative to the point pattern, each object structure causing a modulation of the light detected by the optical detection system within a detection point spread function.”

13. With the wave field microscope generating interference patterns as a result of standing waves, a space between two object structures is clearly a function of the distance between any two such points.

14. In accordance with claim 29, the detection system need be capable of detecting fluorescent light. It is noted that there need not be any fluorescent light produced or be actually detected, but rather, the microscope just be capable of detecting said fluorescent light. Further, it is noted that the fluorescent light can be of virtually any wavelength. Gustafsson et al., Fig. 33, discloses an embodiment where the detection system is a “camera” and the light is fluorescent light. And at column 23, Gustafsson et al., disclose standing wave fluorescence microscopy. Such a showing is deemed to meet a limitation of claim 29.

15. Gustafsson et al., column 23, teaches of changing the phase angle, one is then able to change the number of standing waves. Such a disclosure speaks directly to the limitation of claim 30 where the interfering light beams can be at a variable angle to one another.

Gustafsson et al., Figures 5 and 6, depict phase contrast microscopes that have multiple objective lenses. Gustafsson et al., column 23, bridging to column 24, teaches:

The set of wave vectors of the light that can be sent in through the objective lens(es) is limited by the light wavelength and the acceptance angle (numerical aperture) of the objective lenses exactly the same way as outgoing emission light as shown above... Thus, the set of possible standing wave vectors for a single objective lens system is shown FIG. 7, and the set of possible standing wave vectors for a dual objective lens system is shown by FIG. 8, wherein  $\lambda$  is in this context understood to denote  $\lambda_{\text{excitation}}$ . The set of standing wave vectors for a dual objective lens system that lacks the ability to send both laser beams through the same lens is described by the side lobes of FIG. 8; where  $\lambda$  is  $\lambda_{\text{excitation}}$ .

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16. Gustafson et al., column 10, and in Figs. 2 through 6, depict various embodiments of where multiple objective lenses are employed and wherein multiple reflectors are individually assigned to an objective lens. Also disclosed therein is the incorporation of beam splitters. The aspect of the lenses and/or mirrors being adjustable speaks directly to there being a higher and lower numerical aperture. This disclosure is deemed to meet a limitation of claims 31-33.

17. As seen in the figures, the light sent through the objective lens is also sent back through an objective lens, which can be the same objective lens, if only one is used, or the same or opposing objective lens, when two or more objective lenses are used. Such speaks directly to a limitation of claim 34.

### ***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 35-39 are rejected under 35 U.S.C. 103(a) as obvious over US Reissued Patent RE 38,307 E (Gustafsson et al.) in view of US Patent 6,424,421 B1 (Cremer et al.).

22. See above for the basis of the rejection as it pertains to the disclosure of Gustafsson et al.

23. Gustafsson et al., have not been found to disclose a “holding device” (stage) that rotates about an axis, or the incorporation of a scanning system

24. Cremer et al., like Gustafsson et al., disclose a wave field microscope that is capable of measuring distances between objects. As see in column 3, the wave field microscope can be used to generate 2- or 3-dimensional object points. At column 6, penultimate paragraph, Cremer et al., teach that standing wave field microscope provides high resolution, thereby allowing one to study objects at the molecular level. At column 12, Cremer et al., teach of analyzing DNA.

25. Cremer et al., column 7, teach that the object is fixed on or in a rotating carrier (applicant’s “holding device”). Such teaching speaks directly to the movement of the object amongst the point pattern. The aspect of the holding device being capable of rotating about an axis meets a limitation of claims 35-38.

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26. Cremer et al., column 7, teaches of quantitative measurement of the signal intensity, and that fluorescence can be used. As seen in column 8, positions can be determined based upon intensities of signal and point spread function.

27. Cremer et al., column 16, disclose using scanning means to identify targets (applicant's objects and object structures) in a sample, wherein said identification/recognition is based upon signal intensities. Such disclosure is considered to meet a limitation of claim 39.

28. In view of the teachings of Cremer et al., one would have been motivated to have included the rotational holder and scanning means into the apparatus of Gustafsson et al., as such would have allowed for greater movement and analysis of sample.

29. In view of the detailed drawings and guidance, said ordinary artisan would have been amply motivated and would have had a most reasonable expectation of success. For the above reasons, and in the absence of convincing evidence to the contrary, claims 35-39 are rejected under 35 U.S.C. 103(a) as obvious over US Reissued Patent RE 38,307 E (Gustafsson et al.) in view of US Patent 6,424,421 B1 (Cremer et al.).

### ***Conclusion***

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4,621,911 (Lanni et al.) discloses wave field microscope, which incorporates beam splitter, at least one coherent beam, generation of point pattern in either 2- or 3- dimensions, detection of point-spread function, movement of specimen (applicant's object) relative to standing wave.



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31. Objections and/or rejections which appeared in the prior Office action and which have not been repeated herein above have been withdrawn.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751.

The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner  
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